Street, Park, and Public Property Inventories

Trees on streets, in parks, and on other publicly owned properties provide aesthetic and environmental benefits to citizens, businesses, and visitors alike. Beyond shade and beauty, trees also have a monetary value that cities sometimes are unaware of—your urban forest could be worth over a million dollars. Unlike other city infrastructure components, properly maintained trees increase in value over time.

A tree inventory, maintenance and planting needs assessment, and up-to-date mapping are basic and essential tools for protecting this valuable resource. Using these tools, cities are given detailed information and recommendations needed to effectively and proactively manage public trees. This inventory information is also used in creating a comprehensive urban forest management plan and multi-year budget.

Commonly collected data during an inventory includes:

- Location
- Species
- Diameter
- Condition
- Maintenance Need and Priority
- Proximity to Utility Lines, Traffic Signs, and Signals
- Sidewalk and Other Hardscape Damage
- Insect and Disease Problems
- Potential Planting Sites

Inventories are generally completed by trained *Certified Arborists*. The data is generally collected using handheld computers and Geographic Positioning Systems (GPS) equipment for mapping.

Using either commercially available tree management software programs, simple computer spreadsheet programs, or other programs, cities can easily and quickly create work reports, track tree maintenance and planting tasks and costs, and respond to citizen requests.

Data collection and inventory software can entail a significant investment of time and money, so managers need to carefully consider how the results would affect their overall program. Benefits and uses of a tree inventory include:

Increase Public Safety

Any kind of urban forestry program must address basic maintenance needs. This need follows from the primary obligation of prudent stewardship that lies at the heart of liability. A tree inventory will provide lists of trees requiring priority removal and pruning that the manager can carry out within the limits of budget and time.

The inventory can be used subsequently to monitor trees for safety on a continual basis. The existence of data on trees makes it easy to locate and re-evaluate them on a regular schedule.

Facilitate Short- and Long-term Planning

Planning can be made much easier by using the data from a tree inventory. Lists or maps can be generated of geographic areas (*e.g.,* all trees in Ward 4), work needs (*e.g.,* all hazard removals of trees over 20 inches in diameter), sites (*e.g.,* pit trees), or any other useful basis supported by the collected data.

When intervention becomes necessary, an inventory is invaluable. Whether the concern is tree fertilization, pest management, or any other procedure, having complete tree data that can be easily ordered and analyzed will make planning for the job and its costs much easier.

Some urban foresters also track the work history of each tree with the inventory. This helps in addressing service requests, determining when an individual tree is near the end of its useful life, and supplying critical data to evaluate species performance.

Finally, long-term planning for the forest is rendered easier by an inventory. Management issues, such as prioritizing maintenance, maintaining species diversity, and training young trees, can be readily addressed.

Increase Efficiency

Once an inventory has identified the work to be done, a manager can use it to execute that work in a much more efficient manner than before. By scheduling all work in a given area to be done at the same time, substantial savings are usually realized from the reduction of time spent on logistics. Instead of sending crews to handle situations one-at-a-time anywhere in an urban forest, the crews go to one area and carry out all the necessary work. The savings in travel and set-up time are substantial, with historical examples showing about a 50% reduction in cost—especially when a system of rotational work and/or preventative maintenance is adopted.

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There is also increased efficiency in the office created by using an electronic inventory to locate and manipulate records, and select and schedule work.

Improve Public Relations

Tree inventories can usually be used to better serve the public by tracking service requests. This allows the urban forest manager to record requests, link them with individual tree records, and prepare inspection lists. Such a procedure is especially useful to avoid multiple or unnecessary visits to a site—for example, if the inventory indicates that a tree is not on public property or a work order has already been issued. Most callers are pleased that they have reached someone who knows their tree and can answer general questions or respond directly to their request.

Tree inventories are also useful tools for public education. The inventory data, maps, or summary reports can be distributed in print or on a website so the public can access them. In this way, the public can gain a better understanding of the work of urban forestry, and become more willing to support its program.

Justify Budgets

Up-to-date tree inventories provide the data needed to determine specific levels of funding needed for tree maintenance and tree planting projected over a multi-year period. With accurate data, a manager can establish, prioritize, and justify annual budget requests. The tasks and associated costs are clearly spelled out, and can be supported by detailed lists. Many tree managers have found that they have much greater success with budget requests that are based on the analysis of high-quality data. Also, a good inventory provides a solid basis for grant applications.

Document Actions

For all sorts of reasons, tree managers are frequently asked to provide documentation of their actions. This documentation can range from work accomplished to a contractor's costs per tree, from a removal list to a particular service request. Some requests may be routine, while others may have strong budgetary or even legal implications. Most tree inventory software makes such documentation very easy through reports that can be run off the inventory database. Software packages come with standard reports, and there is usually a mechanism for creating special reports. When documentation is required, much time and aggravation can be spared through the use of a good inventory.

Calculate Tree Benefits

Recent developments by USDA Forest Service researchers make it possible to use inventory information to calculate the environmental benefits and their value. The programs STRATUM and UFORE, developed by researchers and now embedded in the USDA Forest Service's i-Tree software suite (www.itreetools.org), allow accurate estimation of the urban forest's effects and value.

STRATUM can be run on existing street tree and park tree inventories, while UFORE calculates the effects of an entire urban ecosystem based on its own sampling and data collection scheme. Such calculations contribute a strong argument for urban forest management that can be used by urban forest managers and community planners.

Other Benefits

- Enhanced relations among city and private agencies
- Improved prevention of major insect and disease epidemics
- Legal documentation of tree value
- Better planting decisions based on species and location
- Qualification for Tree City, USA designation and grant programs

By enabling urban forest managers to develop a basis for long-range, proactive planning, a tree inventory helps ensure the continued beauty, vitality, safety, and survival of all public trees.